

IN THE CLAIMS:

Kindly cancel claims 1-6 and add new claims 7-16 as shown in the following listing of claims, which replaces all previous versions and listings of claims in this application.

1. - 6. (canceled).

7. (new) An apparatus for evaluating a deviation between patterns that are successively formed on a wafer to fabricate a semiconductor device, comprising:

a memory for storing CAD data used to form the successively formed patterns of the semiconductor device;

a microscope for obtaining an image of an already formed one of the patterns on the semiconductor wafer;

a monitor for displaying the image obtained with the microscope;

means for reading first CAD data used to form the already formed pattern of the semiconductor device and reading second CAD data to be used to form another pattern of the semiconductor device that will be connected to the already formed pattern; and

means for displaying the first and second CAD data with the displayed image of the already formed pattern as an overlapped image on the monitor to enable evaluation of a deviation of the already formed pattern from the first and second CAD data.

8. (new) An apparatus for evaluating a deviation between patterns according to claim 7; wherein the microscope comprises a scanning microscope.

9. (new) An apparatus for evaluating a deviation between patterns according to claim 7; wherein the successively formed pattern that will be connected to the already formed pattern comprises a pattern used to form a layer of material at least partially covering the already formed pattern.

10. (new) An apparatus for evaluating a deviation between patterns according to claim 7; further comprising designating means for designating a desired region of the wafer containing a predetermined pattern, and low magnification pattern image acquiring means for acquiring low magnification pattern image data of the predetermined pattern from the image obtained by the microscope by controlling an observation position of the microscope so that a center of observation of the predetermined pattern falls in a predetermined observation field of view.

11. (new) An apparatus for evaluating a deviation between patterns according to claim 10; further comprising means for sampling an edge of the predetermined pattern contained in the low magnification pattern image data and outputting edge line segment data.

12. (new) An apparatus for evaluating a deviation between patterns according to claim 11; wherein the means for reading first and second CAD data comprises means for obtaining CAD line segment data.

13. (new) An apparatus for evaluating a deviation between patterns according to claim 12; further comprising means for calculating a deviation amount between the center of observation of the microscope and a center of the predetermined observation field of view by comparing the CAD line segment data and the edge line segment data.

14. (new) An apparatus for evaluating a deviation between patterns according to claim 13; further comprising means for controlling a position of a sample stage of the microscope such that the center of observation and the center of the predetermined observation field of view coincide with each other.

15. (new) An apparatus for evaluating a deviation between patterns according to claim 7; further comprising a navigation apparatus having means for providing a low magnification image of the already formed pattern by controlling a sample stage of the microscope based on position information of the predetermined pattern, and means for calculating a deviation amount between the low magnification

image of the already formed pattern and a CAD line segment image corresponding to the low magnification image of the predetermined pattern by performing a matching processing in order to locate the low magnification image of the already formed pattern at a center of a field of view of the microscope.

16. (new) A CAD navigation apparatus comprising:
a memory for storing CAD data used to form a plurality of patterns on a semiconductor device;

designating means for designating a predetermined one of the patterns formed on the semiconductor device for evaluation;

an imaging apparatus having a microscope and a display for obtaining and displaying an image of the predetermined pattern on the semiconductor device;

low magnification pattern image data acquiring means for acquiring low magnification pattern image data of the predetermined pattern designated by the designating means from the image obtained by the imaging apparatus by controlling an observation position of the imaging apparatus so that a center of observation of the predetermined pattern falls in a predetermined field of view;

means for outputting edge line segment data by sampling an edge of the predetermined pattern contained in the low magnification pattern image data;

means for obtaining CAD line segment data of the predetermined pattern corresponding to the low magnification pattern image data;

means for calculating a deviation amount between the center of observation of the imaging apparatus and a center of the predetermined field of view by comparing the CAD line segment data and the edge line segment data; and

means for controlling a position of a sample stage of the imaging apparatus such that the center of observation and the center of the predetermined field of view coincide with each other.